

the cœlomic cavity of somite XI and further inpushings of the ectoderm. In all of the preceding sections the somatopleuric wall is the thicker.

- Fig. 4.* In this figure the cœlome of somite VII is much reduced in size. The cœlome of VIII is beginning to thrust itself into the appendage, which is marked off by a shallow groove in front and by a deeper inpushing, which has a forward direction, between somites VIII and IX.
- Fig. 5.* In this section the inpushing seen in fig. 4 has gone much further, dividing the cœlome of somite VIII into two parts. On the inner wall of the appendage are two inpushings, which are the beginnings of the lamellæ of the lung-book.
- Fig. 6.* A section of the appendage of somite VIII cut at a different angle from the preceding. Here four lamellæ are seen.
- Fig. 7.* A sagittal section from a stage just after the reversion of the embryo.
- Fig. 8.* A section of the appendage of the IX somite, showing at the inner end of the inpushing the beginning of the tracheal tubes.
- Fig. 9.* A section of the tracheal region after the reversion of the embryo.
- Fig. 10.* This figure is a representation of the ventral surface of an embryo which is about the same age as those from which sections seen in figs. 5, 6, and 8 were cut.

XXXI.—*Descriptions of some new Species of Prionidæ.* By C. J. GAHAN, M.A., of the British Museum (Natural History).

Prionocalus Gunteri, sp. n.

♂. Niger, subnitidus; femorum basibus subtus, tibiis, tarsis, palpis antennisque piceo-castaneis, his basi nigrescentibus; mandibulis elongatis, curvatis, sat dense sed non rugose punctatis; capite prothoraceque fortiter creberrimeque rugoso-punctatis; capite supra bicarinato, carinis leviter curvatis, sat prominentibus, lateraliter utrinque pone oculum tuberculo conico magno instructo; elytris sat brevibus, subtriangularibus, supra passim creberrime vermiculato-rugosis; margine laterali ad apicem prominentiæ humeralis acutissime angulato vel dentato; abdomine minutissime punctulato.

Long. corp. 45 mm., mandib. 15 mm., lat. max. elytrorum 19 mm.

Hab. Zoruma, in Ecuador (*T. F. Gunter*).

This species seems to be on the whole most nearly allied to *P. iphis*, White, though it is easily to be distinguished at first sight by the relatively shorter and broader form of the elytra. It differs further in having a very sharp angle or tooth at the apex of the somewhat backwardly-turned prominence placed at the shoulder of each elytron, and by having

the mandibles less closely and less roughly punctured. The mandibles are also quite different in form from those of the small male type of *P. iphis*, being elongated, strongly curved, rather cylindrical, and unarmed towards the base, and dilated and compressed to a thin cutting-edge at the extremity, as in the larger males of *P. cacicus*, White, and *P. Buckleyi*, Waterh. This difference, however, is not greater than might be expected to occur between forms of major and minor development within the limits of a single species, and must not be looked upon as a character for distinguishing the species. The two prominent and very distinct ridges on the upperside of the head, running back from the antennal tubercles, the absence of smooth callous areas from the base of the pronotum, and the feebleness of the punctuation of the abdomen are characters that readily distinguish the present species from *P. Buckleyi*, Waterh., and presumably also from the *P. Whymperi* and *P. trigonodes* of Bates, who has not mentioned any of these characters as distinguishing his species from *P. Buckleyi*.

Acanthophorus modicus, sp. n.

♂. Piceo-niger, nitidus; prothorace supra medio vix punctato, versus latera sat dense et subrugose punctato, disco bituberculato, tuberculis sat remotis, obtusis et paullo elevatis; elytris leviter coriaceis, minute haud dense punctatis, nitidis, apicibus rotundatis, utrisque ad suturam breviter dentatis; antennis medium elytrorum longe superantibus, articulis 6^o-10^m apice intus breviter angulato-productis.

Long. 45, lat. 15 mm.

Hab. Lahore in the Punjab (*Capt. Illingworth*).

Resembles in colour and in many points of structure the South-African species, *A. capensis*, White, but has the joints of the antennæ from the sixth to the tenth only slightly produced and less acutely angular at the inner apex; the eyes are rather more widely separated above, and behind each there is a rugose and depressed area, which extends a little further upwards than does the eye itself; the mid-dorsal region of the head forms with the front a continuous nitid and almost impunctate area with an impressed line along the middle; the underside of the head and the sides of the breast have a shorter and thinner pubescence, and this pubescence is greyish rather than tawny in colour. The mandibles in the two males of the present species are short, toothed along the inner edge, and in form quite like those occurring in the females and smaller males of the species of this genus.

Acanthophorus rugiceps, sp. n.

♂. Piceo-niger, subnitidus; capite sat valde irregulariterque rugoso, area angusta longitudinali levi, oculis supra distantibus; pronoto (in medio excepto) sat dense punctato et versus latera rugoso; elytris subcoriaceis minute punctulatis, area parva utrinque paullo pone basis medium sat dense fortiusque punctata; mandibulis elongatis, valde punctatis, utrisque intus paullo ante apicem dentibus tribus vel quatuor armatis; antennarum articulis 6^o–10^m apice intus breviter angulato-productis.

Long. corp. 60, mandib. 16 mm.; lat. ad hum. 20 mm.

Hab. Bombay?

Blackish brown in colour. Head irregularly and rather strongly rugose, except along a narrow median longitudinal area; eyes widely separated above (the interval between them equals 8 millim. in the male type), each limited at its inner or upper border by a rather prominent ridge, which is continued a short way beyond the hind border of the eye. Mandibles elongated, curved, pointed at the apex, and each furnished with three or four teeth on its inner side beyond the middle of its length. Pronotum rather closely and strongly punctured, except along a narrow mid-dorsal area, and distinctly rugose towards the sides. Elytra slightly rugulose and somewhat coriaceous in appearance, very feebly and sparsely punctured except over a small area on each, which is placed a short way behind the middle of the base.

Orthomegas similis, sp. n.

O. cinnamomeo persimilis, sed paullo major, mandibulis (♂) spina dorsali multo altiore armatis; oculis supra latius separatis.
Long. 62–74 mm.

Hab. Brazil.

Mandibles horizontal, each in the male with a strong dorsal spine directed almost perpendicularly upwards, and, like the mandibles themselves, fringed with tawny hairs on the inner side. Head with the eyes separated from one another above by a rather broad interval ($2\frac{1}{2}$ –3 millim.). First joint of the antennæ devoid of pubescence. Sides of the prothorax each with two or three short spines, in addition to the anterior and the strong posterior spine; two of these spines are generally distinct and acute, the third (that next the anterior spine) is very small and sometimes obsolete.

From *O. cinnamomeus*, Linn., the present species is distinguished by the much stronger dorsal spine with which each of the mandibles is provided, and by the wider interval which

separates the eyes from one another on the upperside of the head. As minor points of difference may be noted the complete absence of pubescence from the first joint of the antennæ in both sexes and the presence of two tolerably distinct, though short, spines between the anterior and posterior on each side of the prothorax.

Rhaphipodus andamanicus, sp. n.

Badius : capite, antennis pedibusque plus minusve fuscis : pronoti lateribus in utroque sexu antice convergentibus, angulis anticis haud rotundatis : elytris subtilissime granulatis et subopacis, antice circum scutellum et prope suturam levioribus nitidioribus.

♂. Pronoto confertissime punctulato et opaco, plaga angusta transversa ad basin, plaga triangulari disco utrinque et plagis duabus minoribus exterioribus sparse punctulatis et subnitidis, instructo : scutello confertim punctulato, margine levi nitido ; corpore subtus confertissime punctulato et opaco, area triangulari medio metasterni, segmento quinto abdominis et marginibus posticis præcedentum, nitidis.

♀. Pronoto sparse punctato, medio nitido ; scutelio sparse punctulato.

Long. 49-67 mm.

Hab. Andaman Islands (*Roepstorff*).

This fine species may be distinguished by the somewhat trapezoidal form of the prothorax in both sexes. In the male, as in the female, the outer margins of the pronotum, furnished with a series of rather strong spines, distinctly converge anteriorly, and each forms with the front margin a tolerably acute and slightly projecting angle. In the male the pronotum is very closely and rather minutely punctured and opaque, with a narrow transverse space at the base, a triangular area on each side of the middle, and two smaller areas external to it, sparsely punctured and more or less glossy. In the female the pronotum has two slight swellings on each side of middle of the disk ; it is sparsely punctured and subnitid over the whole central area, but is somewhat more thickly punctured and less nitid towards the sides. The elytra are very minutely granular and only slightly glossy over most of their surface, but are smoother and glossier alongside the anterior part of the suture.

Basitoxus rugosus, sp. n.

Piceo-fuscus, fortiter subrugoseque punctatus ; tibiis omnibus apice extus spinosis.

♂. Lateribus pronoti subparallelis, breviter denticulatis ; disco basi et plaga utrinque prope medium sparse punctatis nitidis.

♀. Lateribus pronoti antice paullo convergentibus, fortius denticulatis; basi anguste et plaga media disci nitidis, sparsissime punctatis.

Long. ♂ 62, ♀ 68 mm.

Hab. Cayenne (*Lacordaire*).

Dark brown. Head thickly and coarsely punctured above; cheeks prominent, each projecting downwards and forwards to form a rather sharp and distinct tubercle. Mandibles strong, sharply curved, pointed at the apex, and each furnished with two strong cutting-teeth on the inner border, one a little behind the apex, the other near the base. Antennæ of the male scarcely reaching to the middle of the elytra; third joint half as long as the first, fourth equal to the third, the succeeding joints gradually and very slightly increasing in length. Pronotum of male very closely punctured, except over a narrow basal area, and over two areas placed one on each side of the middle; these are sparsely punctured and nitid. The lateral margins of the pronotum are nearly parallel, and are furnished with a series of very short teeth, of which the hindmost on each side is the strongest; between the margin and the nitid area of the disk there is on each side a rather distinct depression. The elytra are strongly rugose-punctate. The underside of the prothorax is thickly and rather strongly punctured, and is strongly convex from side to side; the flanks of the male prothorax are somewhat swollen, but are scarcely visible from above; there is no trace of the suture which usually separates the episternum from the prosternum. The tibiæ of the two posterior pairs are almost unarmed along the outer border, those of the anterior pair are distinctly enough spined; all the tibiæ are produced at the outer distal angle into a tolerably strong spine.

This species, which is the *Mallodon rugosum* (Dupont) of Dejean's Catalogue, might perhaps be regarded as the type of a new genus, distinguishable from *Basitoxus* by having the tibiæ all armed with a spine at the outer distal angle.

Eurypoda Batesi, sp. n.

♂. Fusca, elytris rufo-castaneis, pronoto confertissime minuteque punctulato, area mediana magna subpentagonali nitida sparseque punctulata et postice arcuatim foveato-impressa; elytris dense distincteque punctatis.

Long. 33 mm.

Hab. Yumaguchiya, in Japan. In the collection of Mr. G. Lewis.

Head thickly and rather strongly punctured. Mandibles

rather large for this genus and provided with a well-marked dorsal ridge. Pronotum slightly angulate behind the middle on each side, finely and very closely punctured except over a large median area somewhat roughly pentagonal in shape, of which one side is contiguous with the base, one angle with the anterior margin. This area is somewhat glossy and sparsely punctured. The elytra, of a reddish chestnut-colour, are glossy and rather thickly and distinctly punctured. The underside of the prothorax is very closely and finely punctured, and bears some minute and sparsely scattered granules; the sides of the breast are rather thickly, the middle more sparsely, punctured; the abdomen is rather sparsely punctured, except along the middle of the last segment, where the punctures are larger and more thickly placed. The basal joints of the antennæ are rather sparsely punctured, and the joints from the third to the fifth are slightly flattened above.

This species is distinguished from *E. antennalis*, Saund., by its broader form, its larger mandibles, the shape of the central shining area of the pronotum, and the less closely punctured antennal joints. In *antennalis* the pronotum has, in addition to the central shining area, two lesser areas cut off from it, one on each side.

Ægosoma Bowringi, sp. n.

Fusco-ferrugineum, pube fulvescente sat dense obtectum; prothorace lateraliter vix dentato; utroque elytro lineis tribus acute elevatis—duabus dorsalibus, postice in una conjunctis, tertia prope marginem externam antice evanescente, apice ad suturam spinoso; antennis (♂) corporis longitudine æqualibus, ferrugineis, tenuiter asperatis, articulo 3^o quam 1^o duplo longiore, (♀) quam corpore paullo brevioribus.

Long. 20–35 mm.

Hab. N. India, Sylhet (*Bowring*).

This species may be distinguished from *Æ. sulcipenne*, White (to which it appears most nearly allied), by its close covering of short fulvous or greyish-fulvous pubescence. In *sulcipenne* the pubescence is much sparser, and allows the colour of the derm to show up distinctly, and on the elytra is confined to linear tracts along the depressed groove-like intervals between the costæ; whereas in the present species it covers the whole upper surface, with the exception of the raised lines. In the females a reddish callous spot is to be seen on each side of the prothorax just under the lateral carina.

Ægosoma Buckleyi, sp. n.

Nigro-fuscum; capite supra granuloso-punctato; prothorace utrinque trispinoso, spina antica minima, dorso dense punctato, breviter sparseque villosa; elytris piceo-brunneis dense interrupteque rugulosis utrisque lineis duabus elevatis sat distinctis, instructis; antennis (♂) quam corpore paullo longioribus, articulis 1^o-3^m asperatis, opacis, (♀) quam corpore brevioribus, articulis 1^o-3^m vix asperatis.

Long. ♂ 40, ♀ 45 mm.

Hab. North India (*Colonel Buckley*).

This species seems most nearly allied to *Ægosoma tibiale*, White, from which it may be easily distinguished by its interruptedly rugulose (or granulated) elytra. It also bears some affinity to *Æ. cingalense*, White; but in the latter there is no anterior tooth on the side of the prothorax, the disk of the prothorax has a depression in the middle, and the elytra of the male are closely covered with a tawny pubescence. In examples which I believe to be the females of *Ægosoma cingalense* the elytra are naked and finely granulate; and they were such forms that Bates characterized as a distinct species under the name of *Ægosoma angustatum*.

XXXII.—*Description of a new Species of Dragonfly* (*Dythemis Broadwayi*) from *Trinidad*. By W. F. KIRBY, F.L.S., F.E.S., Assistant in Zoological Department, British Museum (Natural History), South Kensington.

THE present species was sent over by Mr. Broadway, of the Botanic Gardens, Trinidad, some time ago, but has remained undescribed till now, as I have not been working at South-American dragonflies till lately.

Dythemis Broadwayi, sp. n.

Long. corp. 35-40 millim.; exp. al. 54-61 millim.; long. pter. 3 millim.

Head yellow, darker above; mandibles and suture of labrum black; occiput black, shining, with the occipital triangle, two contiguous spots just below it, and a spot on each side yellow. Thorax ferruginous, with three short yellow streaks above, the middle one very slender; a line on the front of each tegula, and a row of spots on the middle line, between the wings, yellow; sides of thorax slightly metallic, with six yellow stripes—the first rather narrow, angulated, and nearly interrupted, the second broad, very short, the third slender above and broad below, the fourth broader, rather irregular,